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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/672,776	09/29/2000	Fumiyoshi Ono	Q61045	2256

7590

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EXAMINER

BROWN, CHARLOTTE A

ART UNIT

PAPER NUMBER

1765

9

DATE MAILED: 04/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

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# Office Action Summary

Application No.  
09/672,776

Applicant(s)  
Ono

Examiner  
Charlotte A. Brown

Art Unit  
1765



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on Jan 31, 2002
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 6-9 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 6-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some\* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

- 15) ☐ Notice of References Cited (PTO-892) 18) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 19) ☐ Notice of Informal Patent Application (PTO-152)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_ 20) ☐ Other:

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### DETAILED ACTION

1. The declaration under 37 CFR 1.132 filed August 22, 2001 is insufficient to overcome the rejections of claims 6-9 because the conclusion is not supported by the data. The conclusion states that as the surface area of the alumina becomes less than 30 m<sup>2</sup>/g, the number of scratches increases. In comparative example two of the data table, a surface area of 27 m<sup>2</sup>/g is provided. The corresponding number of scratches is 5. The number of scratches in comparative example two is identical to the number of scratches in comparative example one in which the surface area is 50 m<sup>2</sup>/g. Therefore, the conclusion is not supported by the data.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kasai et al. (US 6,007,592) in view of Sakatani et al. (US 5,804,513).

Kasai discloses a polishing composition for an aluminum disk that includes water, an alumina abrasive agent and a polishing accelerator. The polishing accelerator is preferably basic aluminum nitrate. The abrasive agent is alumina. The alumina particles have a mean particle size of 0.1 to 0.4  $\mu$ m (Column 3, lines 56-62). The alumina has an alumina crystalline structure with an

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alpha-phase content of 80% to 95% (Column 4, lines 4-16). This reads on the applicant's limitation that the alumina particles have an alpha conversion ratio of from 65% to 90%.

Unlike the claimed invention, Kasai does not teach a method in which the alumina particles have a specific surface area of from 30 to 80m<sup>2</sup>/g.

Sakatani discloses an abrasive composition for polishing and planarizing a metal layer formed on a semiconductor substrate. The abrasive particles of the present invention comprise aluminum oxide. The particles have a mean particle size of 2  $\mu\text{m}$  or less, preferably about 0.1  $\mu\text{m}$  to 1.5  $\mu\text{m}$ . The specific surface area of the abrasive particle of the present invention is preferably about 40 m<sup>2</sup>/g to about 150 m<sup>2</sup>/g (Column 4, lines 20-32). This reads on the applicant's limitation of using alumina fine particles with a specific surface area of from 30 to 80 m<sup>2</sup>/g. Alpha-type aluminum oxide is used (Column 4, lines 37-38).

It is the Examiner's position that a person having ordinary skill in the art would have found it obvious to modify Kasai with the method of using alumina particles with a specific surface area of from 40 to 150 m<sup>2</sup>/g as taught by Sakatani. The method of using alumina particles with a specific surface area in the polishing composition would have been anticipated in order to reduce the generation of scratches on the polishing surface.

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***Response to Arguments***

4. Applicant's arguments filed January 31, 2002 have been fully considered but they are not persuasive.

The applicants' state that the Examiner has not fully appreciated the Declaration evidence submitted on August 22, 2001. However, the declaration filed under 37 CFR 1.132 is insufficient to overcome the rejection of claims 6-9. The applicants' state that a person having ordinary skill in the art would not combine Kasai and Sakatani since Sakatani does not disclose the use of alpha-type alumina oxide in a composition for chemical-mechanical polishing having a surface area in the range of the present invention. This point is not accepted since Sakatani discloses that the abrasive particles in this polishing composition comprise an oxide selected from aluminum oxide and silicon oxide. The surface area of the abrasive particles is preferably from about 40m<sup>2</sup>/g to about 150m<sup>2</sup>/g (Column 4, lines 20-23). The Examiner admits that Sakatani discloses that defects occur on the polishing surface when alpha-type aluminum oxide is used. However, Sakatani discloses that these defects occur when the surface area is less than about 40m<sup>2</sup>/g (Column 4, lines 23-27). Therefore, Sakatani discloses a surface area in the range of the present invention. Since Sakatani uses alpha-type aluminum oxide in one example of the invention, he does not teach against the use of alpha-type alumina particles.

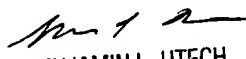
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5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

6. Any inquiry concerning this communication from the Examiner should be directed to Charlotte A. Brown whose telephone number is 703- 305-0727. The Examiner can normally be reached during the hours of 9:00AM to 6:30PM.

The fax phone numbers for the organization where this application or proceeding is assigned are 704-305-5408 for regular communications and 703-872-9311 for After Final communications.

  
BENJAMIN L. UTECH  
SUPERVISORY PATENT EXAMINER  
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CAB

March 27, 2002